

involved in the adhesion of mycobacteria to the sulphated glucides of epithelial cells.

57. An antigen according to claim 56, characterized in that the peptide sequence involved in the adhesion function is comprised in the following sequence:

KKAAPAKKAAPAKKAAPAKKAAAKKAPAKKAAAKKVTQK

B<sub>1</sub>  
cont.  
or any portion or variant of this sequence enabling mycobacteria to adhere to host cells and obtained by addition, substitution or deletion of one or more amino acids of said peptide sequence.

58. An antigen according to claim 56, obtainable from *M. bovis* BCG or *M. tuberculosis*.

59. An antigen according to claim 56 characterized in that it is recognised by the monoclonal antibodies 4057 D2 and 3921 E4.

60. A recombinant peptide sequence which is obtainable by expression in a host cell of a polynucleotide sequence shown in Figure 10, and constituting an HBHA mycobacterial antigen involved in the adhesion of mycobacteria to the sulphated glucides of epithelial cells.

61. A peptide sequence according to claim 60, characterized in that the polynucleotide sequence is obtained from *M. bovis* BCG or *M. tuberculosis*.

62. A peptide sequence according to claim 60, characterized in that it is recognised by the monoclonal antibody 3921 E4 and not recognised by the monoclonal antibody 4057 D2.

B<sub>1</sub>  
Cont.  
63. A recombinant peptide sequence according to claim 60, comprised in the portion comprising the last 50 amino acids of the C-terminal extremity of the sequence of Figure 10, or any variant of that sequence obtained by addition, substitution or deletion of one or more amino acids retaining said adhesion properties.

Sub  
E2  
64. A peptide sequence according to claim 60, characterized in that the host cell is a mycoplasma.

65. An immunogenic composition against mycobacterial infections containing, as an active principle, a proteinic antigen according to claim 56 or a peptide sequence according to claim 60.

66. A reactant for detecting an anti-HBHA antibody in a biological fluid, consisting of:

- Sub  
E3
- a) the HBHA protein purified from a preparation of mycoplasma cell walls, or a fragment thereof, determined by epitope mapping;
  - b) a fragment thereof comprised in the C-terminal portion of that protein, and in particular in the last 50 terminal amino acids shown in Figure 10, according to claim 56; or
  - c) a recombinant peptide sequence according to any claim 60.

Sub  
E16  
B1  
cont.

67. A reactant according to claim 66, characterized in that sequence c) is preferably expressed in a mycobacterium.

68. A kit for serological diagnosis of mycobacterial infections comprising at least:

- a) a reactant according to claim 66, said reactant being coupled to or adsorbed on a support;
- b) an anti-antibody antibody, modified such that a detection signal can be coupled thereto.

Sub  
E17

69. A kit according to claim 68, characterized in that the anti-antibody antibody is specific for human immunoglobulins.

70. A kit according to claim 68, in which the anti-antibody antibody is directly or indirectly labelled, either using a

labelling substance, or by an enzyme which emits a labelling signal by virtue of a transformation of its substrate.

71. A nucleotide sequence, characterized in that said sequence codes for a mycobacterial heparin binding haemagglutinin (HBHA) type antigen.

B1  
cont.

72. A nucleotide sequence according to claim 71, characterized in that said sequence codes for a peptide sequence comprising the peptide sequence of Figure 10 or any portion of said peptide sequence enabling mycobacteria to adhere to host cells and obtained by addition, substitution or deletion of one or more amino acids of said peptide sequence.

73. A nucleotide sequence according to claim 72, characterized in that said sequence codes for a peptide sequence corresponding to the C-terminal portion, more particularly the sequence comprising the last 50 amino acids of the peptide sequence of Figure 10 or any variant of said sequence enabling mycobacteria to adhere to host cells and obtained by addition, substitution or deletion of one or more amino acids of said peptide sequence.

74. A nucleotide sequence according to claim 71, characterized in that said sequence is comprised in a sequence which codes for the following peptide sequence:

KKAAPAKKAAPAKKAAPAKKAAAKKAPAKKAAAKKVTQK

or any variant of said peptide sequence enabling mycobacteria to adhere to host cells and obtained by addition, substitution or deletion of one or more amino acids of said peptide sequence.

75. A recombinant vector, characterized in that it comprises a nucleotide sequence according to claim 71.

76. A recombinant host cell, characterized in that it comprises a nucleotide according to any one of claim 71 in its genome.

77. A recombinant host cell according to claim 76, characterized in that said host is a mycobacterium, in particular BCG.

78. A host according to claim 76, characterized in that said nucleotide sequence is overexpressed by said host.

79. Use of a proteinic antigen according to claim 56 or a peptide sequence according to claim 60 for the preparation of a